

REMARKS

Reconsideration of the issues raised in the above referenced Office Action is respectfully solicited.

The objection to the drawings due to the drawing reference numeral "1" not being present in the specification has been considered. The specification has been amended to now recite a welding tong drive "1" at page 10 thereof. This reference numeral was recited in original Claim 1 and thus no new matter is presented. Therefore, Applicant requests withdrawal of the objection to the drawings.

The objection to Claim 19 has been considered. Claim 19 has been amended as suggested in the Office Action and approval thereof is respectfully requested.

The rejection of Claims 5-10 and 17 under 35 USC §112, second paragraph as being indefinite has been considered. Claim 5, which is now incorporated into Claim 1, has been amended as suggested to include the phrase "holding step". Further, Claim 17 has been cancelled and thus there is no issue with respect thereto. Therefore, reconsideration and withdrawal of the rejection of Claims 5-10 and 17 under 35 USC §112, second paragraph, as being indefinite is respectfully requested.

Claims 5 and 6 have been incorporated into Claim 1 and thus cancelled. Further, Claims 3, 4, 11, 12 and 17 have been cancelled to reduce the number of issues requiring consideration. Since Claim 5 previously depended from Claim 1, and Claim 6 dependent from Claim 5, no new issues are presented by the amendment. Thus entry and consideration of the amendment is respectfully requested.

The rejection of Claims 1, 2, 13, 14, 16 and 18 under 35 USC §102(b) as being anticipated by U.S. Patent No. 5 091 623 to Obara has been considered. Independent Claim 1 has been amended to include the features of Claims 5 and 6 dependent therefrom. Since Claims 5 and 6 previously were not rejected based on Obara, Applicant believes the rejection is now moot

and withdrawal of the rejection based on Obara is respectfully requested.

The rejection of Claims 1-19 under 35 USC §102(b) as being anticipated by Kobayashi has been considered.

As set forth in the previous Response, Kobayashi discloses a method of controlling electrode force on a spot welding gun that utilizes a pressing source 4 and a driving source 6 to move electrodes 3, 5. In operation of the Figure 1 embodiment, the pressing source 4 moves upper electrode tip 5 vertically downward in the closing direction. At the same time, the driving source 6 moves the lower electrode tip 3 vertically upward by moving the entire main gun body 2 upwardly, including electrode 5 as set forth at column 6, lines 9-22. The sources move the electrodes so that the lower electrode tip 3 and the upper electrode tip 5 reach the respective landing start positions at the same time. Thereafter, the electrode tips 3, 5 are moved at a slower speed until contact with a workpiece occurs as disclosed at column 6, lines 49-67 of Kobayashi.

Figure 8 of Kobayashi shows the drive devices 4, 6 as two separate drive devices for an "X-shaped" gun. Column 9, lines 1-6 disclose the pressing source 4 swinging or pivoting an upper gun arm 10 in a vertical direction. The driving source 6 moves the entire gun body, including the upper gun arm 10, as well as the lower gun arm 9, in a vertically upward direction.

As set forth in the previous Office Action, Applicant's Claim 1 recites "actuation of the secondary drive device up to contacting of the welding object with at least one welding tong limb and acquisition of the contacting". Claim 1 further recites "after acquisition of the contacting, closure of the welding tong limbs by the primary drive device with build-up of a predetermined compressive force for welding". As discussed above, Kobayashi discloses at start up, moving both of the welding arms simultaneously with separate drive devices.

Moreover, Kobayashi does not disclose a primary drive device for closure of the welding tong limbs. As discussed above, the pressing source 4 moves the entire body of the gun, including both electrodes 3, 5, upwardly and the driving source 6 shown in Figure 8 only vertically pivots the upper arm 10. Thus, Kobayashi does not disclose or suggest a primary drive device that moves both welding tong limbs toward the welding object as recited in lines 4-6 of Applicant's Claim 1. In Kobayashi, the primary drive device defined by pressing source 4 pivots only one tong limb, instead of both limbs.

Further, in the Response to Arguments at page 9, lines 1-8 of the Office Action, the Examiner states that although "the applicant argues that each drive device of the application is actuated separately (instead of only simultaneous operation), this feature is not specifically claimed" in Claim 1 as the "actuation" and "closure" steps of Claim 1 do not set forth that the secondary drive device is stopped prior to actuation of the primary drive device in the "closure" step.

Applicant's amended Claim 1 now includes the features of cancelled Claims 5 and 6. Thus Claim 1 now recites "after the holding step and before an actuation step, and after termination of the approach towards the welding object, acquiring an applied holding current for the secondary drive device". Thus Claim 1 clearly states that an applied holding current is applied to the secondary drive device after termination of the approach toward the welding object of the welding tongs that are driven by the secondary drive device. Therefore, Claim 1 now clearly recites that the secondary drive device terminates the approach towards the welding object before the secondary drive device receives a holding current.

Claim 1 further recites that only "after acquisition of the contacting, closure of the welding tong limbs by the primary drive device" occurs. Thus, Applicant's Claim 1 now clearly recites that the primary drive device closes the

welding tong limbs after the secondary drive device is stopped.

Dependent Claim 7 recites that the contracting current level is determined "for essentially each spatial point". This feature is not disclosed or suggested by Kobayashi.

Claim 16 recites that bodily changes to the welding electrodes are "acquired on contacting the welding object or contacting the welding tong limbs or the welding electrodes together". This feature of accounting for bodily changes is not disclosed by Kobayashi.

Claim 18 further recites that "the secondary drive device is swivelled by at least two single drives of the welding tongs essentially within a hemisphere". This swiveling feature is not disclosed by Kobayashi.

For the above reasons, reconsideration and allowance of Claim 1, and Claims 2, 7-10, 13-16 and 18 dependent therefrom, is respectfully requested.

Independent Claim 19 recites a primary drive device that is "connected to and is capable of moving at least two welding tong limbs of the welding tong relative to each other". This feature is not present in Kobayashi which discloses a driving source 6 that moves both arms 9, 10 at the same rate in the same direction and thus not relative to each other. The pressing source 4 of Kobayashi only moves upper arm 10 as discussed above.

Claim 19 further recites "maintaining said welding tong limbs in a fixed spatial relationship with respect relative to each other during the pivoting of the welding tong". As discussed above, only the upper arm 10 in Figure 8 of Kobayashi pivots. Thus Kobayashi does not maintain the tong limbs in a fixed spatial relationship during pivoting.

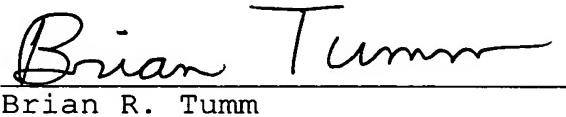
For the above reasons, reconsideration and allowance of Claim 19 is respectfully requested.

The rejection of Claim 20 under 35 USC §103 as being unpatentable over Kobayashi has been considered. Claim 20 is

believed allowable for the reasons set forth above with respect to parent Claim 19.

Further and favorable reconsideration is respectfully solicited.

Respectfully submitted,


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